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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/621,567	07/21/2000	Tomio Amano	13611 (JA9-1999-0054)	5005

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Richard L Catania Esq
Scully Scott Murphy And Presser
400 Gardern City Plaza
Garden City, NY 11530

EXAMINER

AKHAVANNIK, HUSSEIN

ART UNIT PAPER NUMBER

2621

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/621,567

Applicant(s)

AMANO, TOMIO

Examiner

Hussein Akhavannik

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 19-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings were received on 08/11/2004. These drawings are acceptable.

Response to Amendment

2. The cancellation of claims 1 and 3 overcome the claim objections of these claims cited in paragraph 6 of the previous office action.

The cancellation of claim 2 overcomes the 35 USC 112 rejection of claim 2 cited in paragraph 8 of the previous office action.

Response to Arguments

3. Applicant's arguments filed 8/11/2004 have been fully considered but they are not persuasive.

On page 6, lines 20-22, the Applicant alleges Bloomberg does not teach "An embedding method for embedding additional watermarking information into the data representing text information as a black and white binary image." In response to applicant's arguments, the recitation above has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Furthermore, Bloomberg explicitly explains encoding 3-bits of additional watermarking information in the text image area in column 16, lines 34-60. It is inherent that in every

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watermarking system the region that is watermarked is altered in some form, either by replacing the original region with a watermarked region or by watermarking the region directly. The result of both systems is the same.

On page 7, lines 8-11, the Applicant alleges that Bloomberg does not teach various limitations recited in claim 19. The Examiner respectfully disagrees. Please note the 35 USC 102 rejection of claim 19 below that differs from the previous rejection cited in paragraph 10 of the previous office action.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 19-20 and 22-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Bloomberg (U.S. Patent No. 5,761,686).

Referring to claim 19,

- i. Detecting a text image area is illustrated by Bloomberg in figure 4 by the blocks of text 52, 53, 54 . . . extracted from the input document image 10 illustrated in figure 2.
- ii. Splitting the embedded text image area into two or more subblocks is illustrated by Bloomberg in figure 9, wherein the text image area is split into multiple subblocks designated by the label "1".
- iii. Dividing the subblocks into two or more groups is illustrated by Bloomberg in figures 15. Each of the eight (2^3 : three being the maximum number of embedded bits)

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groups (excluding "Reference Block") is designated as having a certain characteristic, such as "Expand Block Up from Topline" or "Shrink Block from Both TL, BL".

Bloomberg illustrates that each subblock is designated to a certain group in figure 16.

iv. Extracting features for the respective groups is explained by Bloomberg in column 16, lines 34-60. Bloomberg explains that the features of position and height are extracted from a reference block.

v. Modifying the extracted features based on the additional watermarking information by increasing the extracted features of one group and decreasing the extracted features of another group is illustrated by Bloomberg in figure 16 by the modifications of the block height and height. Bloomberg explains that by using the encoding operation illustrated in figures 15 and 16, a fixed-length 3-bit input data sequence, corresponding to the additional watermarking information may be encoded in column 16, lines 47-51. Bloomberg illustrates in figure 15 that features of one group is increased whereas the features of another group are decreased by, for example, expanding one group while shrinking another or shifting up one group while shifting down another. Bloomberg explicitly illustrates pairs of subblocks undergoing opposite modifications in figure 16, such as the second (shift up) and third (shift down) subblocks in the first row.

vi. Embedding the modified features into each of the two or more groups as the additional information is illustrated by Bloomberg in figure 16, wherein groups of subblocks are modified.

Referring to claim 20, dividing the two or more subblocks into two or more groups wherein the total sum of area of the subblocks in each group is substantially equal is illustrated

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by Bloomberg in figure 15. By expanding a subblock in one group and shrinking a subblock in another group, the total area of the subblocks will be substantially equal to the area of two reference subblocks. By shifting the subblocks the areas will not be altered.

Referring to claim 22, increasing or decreasing the extracted features in one or more steps is explained by Bloomberg in column 16, lines 34-60, wherein the subblocks are modified in one step.

Referring to claim 23, detecting the embedded additional watermarking information by integrating the embedded features detected for each of the two or more groups is explained by Bloomberg in column 16, line 61 to column 17, line 8. The decoding of the 3-bits of embedded watermarking information is performed by combining the detected features of the altered subblocks grouped into eight subblocks (2^3 : three being the number of embedded bits).

Referring to claim 24,

- i. Dividing the embedded text image area into two subblocks vertically and two or more subblocks horizontally is illustrated by Bloomberg in figure 9. Bloomberg illustrates that subblocks labeled "1" are scattered horizontally and vertically.
- ii. Dividing the subblocks into different physically located upper and physically located lower groups is illustrated by Bloomberg in figure 16. The subblocks belonging to different groups are arranged physically higher and lower than each other.

Referring to claim 25, embedding one or more bits of additional watermarking information is explained by Bloomberg in column 6, lines 34-60, wherein 3 bits of additional watermarking data is embedded into each text region.

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Referring to claim 26, detecting one or more bits of embedded additional watermarking information is explained by Bloomberg in column 16, line 61 to column 17, line 8. The decoding is performed by combining the detected features of the altered subblocks grouped into eight subblocks (2^3 : three being the number of embedded bits) to detect the 3-bits of embedded information.

Referring to claim 27,

- i. Integrating the features detected from the subblocks in each of the two or more groups to obtain an integrated value for each group is explained by Bloomberg in column 21, lines 30-45 wherein quantized values are integrated to determine quantized length, height, and vertical position of the each subblock.
- ii. Comparing the integrated values for the respective groups is explained by Bloomberg in column 21, lines 30-45. Bloomberg explains that the quantized values, produced from the distribution data, are ordered to provide the message bit pattern of the embedded binary data. By ordering the quantized values, it would be inherent that the values would have to be compared to each other.

Referring to claim 28, the features comprising one or more features of black pixels, the transitive number of black and white pixels, the occurrence frequency of any specific local pattern or the average thickness of a line segment is explained by Bloomberg in column 11, lines 36-46 and illustrated in figure 15. One of the features explained by Bloomberg is block height, which corresponds to average line thickness as illustrated in figure 15.

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Referring to claim 29, the text image area for embedding the additional watermarking information comprising a rectangle circumscribed around one or more text lines is illustrated by Bloomberg in figure 4.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bloomberg in view of Abe (U.S. Patent No. 6,580,804).

Referring to claim 21, splitting the detected text image area into two or more subblocks wherein boundary lines between the two or more subblocks pass through individual characters of the text image is not explicitly explained by Bloomberg. However, Abe illustrates a text region being divided into subblocks by horizontal lines and vertical lines in figure 3A. These dividing lines pass through individual characters of the text image. Abe is directed towards watermarking text regions of an image as explained in the abstract. Therefore, it would have been an obvious matter of design choice to modify Bloomberg by having the boundary lines of the subblocks pass through individual characters of the text image, as suggested by Abe, since the Applicant has not disclosed that having the boundary lines individual characters of the text image solves any stated problem or is for any particular purpose and it appears that the boundary lines not passing through individual characters would perform equally as well in encoding a text image area.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Hoover (U.S. Patent No. 6,753,977) – To exhibit watermarking a text region of a document as explained in the abstract and illustrated in figures 4-6.
- Hirayama et al (U.S. Patent No. 6,782,509) – To exhibit watermarking text as explained in the abstract.
- Newman et al (U.S. Patent No. 6,473,523) – To exhibit dividing a text region into multiple subblocks and having the boundary lines of the subblocks pass through individual characters of the text image as illustrated in figure 13.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hussein Akhavannik whose telephone number is (703)306-4049. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H. Boudreau can be reached on (703)305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

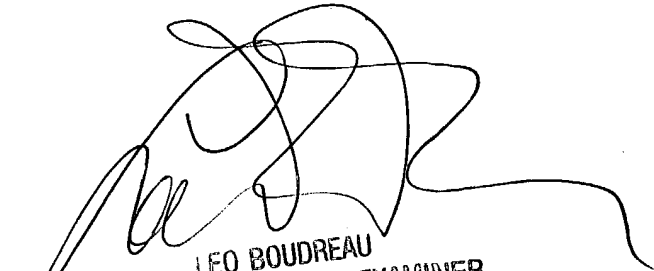
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Hussein Akhavannik H.A.
November 26, 2004



LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600